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THE CHOICE OF AIR ROUTES.

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A casual inspection of the air-travel map of Europe suggests to the layman but little attempt at a careful determination of the location of the routes operated. Criss-crossing back and forth across the continent and seeming to have been laid down haphazard, they give no superficial indication of the application of analysis to their choice.

There are, nevertheless, certain rules with which the location of all commercial air lines should be in accord. Those rules have in general been followed in Europe as they must be followed here, although the peculiar form of some of the governmental subsidies has led to the development in the Eastern hemisphere of a few lines whose merit is political rather than economic. Certain countries, for example, offer exceptional inducements for the promotion of lines running from the parent country to its colonies and dominions.

It is not without significance, and it was not the result of accident, that the three big flights carried out in the last three years by British aircraft have been from the British dominion of Newfoundland to the Irish coast, from London to the British dominion of Australia, and from London to the British dominion of South Africa. It is not without significance also that one of the most notable French cross-country enterprises was the

* Taken from "The Christian Science Monitor."

flight of Commandant Vuillemin from Paris to Dakar in French West Africa, crossing French Morocco and the French Sahara on the way. The governments all realize the great possibilities of the airplane as a means of accelerating communication and tightening the bond between the mother country and her dominions.

Airplanes in India.

The air map of Central Europe, too, is somewhat distorted by the provisions of the International Air Navigation Convention, under the terms of which there is no direct aerial communication between the territory of the principal allied powers and that of their late enemies. Travel between Paris and Berlin, for example, must be carried on by way of Amsterdam, changing from a French to a Dutch or German airplane at that point. The political factor in the determination of flight routes may be even more marked within the next few months than it has in the past, for the report comes from Berlin that there are threats from certain German sources of a permanent aerial boycott against the allied powers unless the restrictions on German aircraft construction and traffic are relaxed.

Only by brushing aside such extraneous considerations as these can we arrive at the economic fundamentals of the problem. First among those fundamentals is that the airplane with its relatively high costs can compete most effectively with established means of transport where those means of transport are slow, uncertain, or inconvenient. It is for this reason that the airplane

has come into such extensive use as a regular means of transport for official travelers in certain countries less developed than our own. In Haiti and San Domingo, for example, it is reported that the airplane is in regular use by high officials of the American Marine Corps administration in order to get from one part of the islands to another. In the East, similarly, the British have found it invaluable for transport in Palestine and Mesopotamia. In fact, the play in which George Arliss is now appearing in Boston, "The Green Goddess," is based on the events which grew out of such a use of the airplane by British officials in India. Where the only previously existing means of travel was by camels or other riding animal the airplane cuts the time required for a journey by fully 90 per cent. Obviously, under such conditions the advantages of air transport shine brighter than they do when it must compete with the Knickerbocker Limited or the Twentieth Century.

One of the most notable examples of a route which runs through a highly developed country and which connects great centers of industry and population, and on which the existing means of transportation are so inconvenient as to offer a great advantage to the airplane, is the line connecting London and Paris. The traveler who has once been through that journey by ordinary means, with its two changes of vehicle, with a channel crossing which seems to try to live up to the worst things that have ever been said of any sea voyage, and with its multiple examination of

baggage will be anxious to use air transport or anything else which enables him to avoid those manifold inconveniences in future. A considerable part of the London-Paris passenger traffic is made up of people who travel by air for greater comfort and convenience than they can obtain by land and sea, and some part at least of the express business comes from shippers of fragile or perishable articles desiring to avoid the heavy handling which those are likely to receive by trans-shipment at the channel and during customs examination. Millinery, eggs and flowers have been among the articles frequently shipped by air between the two capitals. In general the same considerations that make the London-Paris route supremely excellent for exploitation by air will apply to any journey combining land and water transport, or crossing deserts or mountains where the volume of traffic is not large enough to justify the great expense of good railroad construction. There would be a distinct field for aeronautics from this source in some of our western states and in the Great Lakes district.

In the Texas Oil Fields.

Obviously the second requirement for an air route is that the traffic must exist and it must be a relatively wealthy traffic willing to pay for high-speed transport. The quantity need not be large, but the economic quality must be high. These conditions are, of course, most readily satisfied between great cities, where, however, there is likely already to be excellent train service between cities and summer resorts at a considerable distance and pat-

ronized primarily by the wealthy, and in recently opened districts of great mineral wealth. There have probably been more privately owned airplanes employed in connection with the oil industry in the recently developed Texas fields than in any other one way in this country. Speed in locating and developing a source of mineral wealth and taking advantage of the opportunities which appear is all important.

Another requirement, and the last of the very important ones, is that the route must be such that flying will be safe. It is not safe to cross large bodies of water with a land airplane. It is not safe to pilot an airplane over extensive swamps or forests or deserts or over any other country where the danger of wrecking the airplane in a forced landing would maroon the passengers far from the haunts of men. This requirement of good and safe landing places is, unfortunately, often in conflict with the first requirement of a country in which railroads do not operate effectively, and they can only be reconciled by the provision and up-keep of numerous landing places in the undeveloped regions. The British Government has done this, for example, in laying out the route from Cairo to Cape Town with cleared landing fields at reasonably short intervals, most of them offering an opportunity for the obtaining of supplies of various sorts and some being fully equipped airdromes with mechanical assistance available if needed.

Need of Landing Fields.

Air transport cannot develop to a high degree, even in the United States, until some steps are taken to provide fields along

the route for use in case of emergency. Furthermore, there must be landing fields near the cities. At the present time it takes one and three-quarter hours to fly from the Boston airdrome in Framingham to the New York airdrome in Mineola. To go from Boston to Framingham consumes an hour, and 45 minutes more is lost in getting from Mineola to New York City. The total time, therefore, is just double what it would be if flying fields were available close to each city, and any city which has a piece of undeveloped land in a position where a flying field can be established within a few minutes' ride of the business district should declare itself thrice blessed and seize the golden opportunity without further delay. In the light of two and one-half years' experience in commercial operation of airplanes between London and Paris, it is hard to place an estimate on the value that a landing field close to the center of London would have or to guess the increase in traffic which would result from the elimination of the tedious automobile journeys from London out to Croydon and from Le Bourget into Paris.

